Models:
Dual Breaker
800-4000 Amps
480 Volts; 60 Hz

The PD-150 parallels a single generator set to a single utility source. In conjunction with other PD-150s and user-supplied distribution switchgear, it is capable of paralleling up to eight generator sets together and/or paralleling up to eight generator sets and a single utility power source together.

The design allows for automatically starting, stopping, and paralleling the generator sets.

The PD-150 contains the operator interface, controls, protective relays, and circuit breakers. It is available as a fully integrated unit or with a remote wall-mount control section.

Standard Features
- UL 891 listed and labeled
- Service entrance rated
- Metering setup, control, and monitoring via the door-mounted digital paralleling controller
- Multifunctional utility-grade intertie protective relay
- Top or bottom cable entry
- Side or rear access
- Full capacity neutral bus
- 800 to 4000 amp drawout circuit breakers
- 100 kA interrupting capacity

Modes of Operation
Each PD-150 includes the following user-selectable modes of operation:
- Prime power
- Emergency
- Isolate
- Import/export
- Base load generator
**PD-150 Modes of Operation**

Operating modes are selected using a door-mounted key switch.

**Isolate**

Local load transfers from the utility grid to the generator set. The system operates independently from the utility source until an operator terminates the isolate operation.

**Import/Export**

When importing power, the system is configured so that a constant, user-adjustable kW level flows from the utility. Generator output power fluctuates to meet differences between the utility import level and actual system load.

When exporting power, the system is configured so that a constant, user-adjustable kW level flows to the utility from the generator set. Generator output power fluctuates to meet differences between the export level and actual system load.

The system does not allow the generator set to exceed its maximum capacity.

**Complete Power Systems**

Kohler Co. provides complete power systems, from generator sets and fuel systems to automatic transfer switches. As a complete system manufacturer, Kohler Co. factory-tests each power system including the generator sets and transfer switches used at the jobsite. Testing the switchgear and generator sets as a complete system demonstrates the performance and compatibility of each system component, reducing the startup time required at the jobsite. System startup service is available from factory-trained personnel.

**Generator Sets**

Kohler Co. provides a complete line of prototype-tested generator sets from 20 kW to 2000 kW. Generator sets are available with a choice of cooling and exhaust systems and controller.

**Automatic Transfer Switches**

Kohler UL listed open transition transfer switches ensure reliable power source switching in an emergency. Transfer switches are available from 30–4000 amps as automatic transfer switches and 150–4000 amps as automatic transfer bypass isolation switches. Both are available with a full complement of accessories.
Components

Circuit Breakers
Draw-out electrically operated power circuit breakers are standard. The circuit breakers are UL listed and equipped with shunt trip and a microprocessor-based, true RMS sensing trip unit for overload and short circuit protection. Service entrance-rated utility circuit breakers include ground fault protection.

Generator Power Controller
A microprocessor-based generator power controller contains the generator-protective relaying, system logic, synchronizer, and generator load control.

Generator Protective Relays
- Over/Undervoltage (27/59)
- Over/Underfrequency (81 O/U)
- Reverse Power (32G)
- Loss of Excitation (40)

Synchronizer
An automatic synchronizer (25A) electronically adjusts the voltage and frequency of the generator to the voltage and frequency of the utility bus.

Intertie Protective Relay
The multifunctional intertie protective relay has the following protection:
- Phase undervoltage
- Phase overvoltage
- Over/underfrequency
- Negative sequence current
- Dual setpoint negative sequence voltage
- Potential transformer fuse loss detection
- Phase directional overcurrent
- Reconnect enable
- Rate of change frequency

Enclosure
The PD-150 is available in the following enclosures:
- NEMA Type 1: Standard indoor enclosure.
- NEMA Type 3R: Outdoor dripproof enclosure designed for mild climate.

Environmental Requirements
Ambient operating temperature rating of -16°C to 70°C (4°F to 158°F).

Construction

Bus System
Bus construction uses silver-flashed copper bars for phases, neutral, and ground. The system is sized to UL standards for the total load demand. The neutral bus is rated to 100% of phase current. A secured copper ground bus in the structure has a short-time withstand rating equal to the rating of the largest circuit breaker.

Cable Connections
Drilled bus bars and setscrew-type Cu/Al cable lugs (3/0 to 500) are standard for generator, utility, and load connections. The cable bending space of the PD-150 is designed for a maximum cable sizing of 500 MCM.

<table>
<thead>
<tr>
<th>Ampacity</th>
<th>Lugs/Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>800</td>
<td>3</td>
</tr>
<tr>
<td>1200</td>
<td>4</td>
</tr>
<tr>
<td>1600</td>
<td>5</td>
</tr>
<tr>
<td>2000</td>
<td>6</td>
</tr>
<tr>
<td>2500</td>
<td>8</td>
</tr>
<tr>
<td>3000</td>
<td>9</td>
</tr>
<tr>
<td>4000</td>
<td>12</td>
</tr>
</tbody>
</table>

Structure
The 800 to 4000 amp freestanding switchboard cubicle is built of formed, bolted sheetmetal for indoor installation. Cables can enter the top and/or bottom of the structure.

Finish
Sheetmetal parts are cleaned and phosphatized prior to painting. Parts are painted ANSI No. 49 gray.
PD-150 Structure Weights

NEMA Type 1 Structure Weight, kg (lb.)

<table>
<thead>
<tr>
<th>Frame (A)</th>
<th>800</th>
<th>1200</th>
<th>1600</th>
<th>2000</th>
<th>2500*</th>
<th>3000*</th>
<th>4000*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed</td>
<td>439 (967)</td>
<td>439 (967)</td>
<td>452 (997)</td>
<td>489 (1077)</td>
<td>851 (1877)</td>
<td>851 (1877)</td>
<td>933 (2057)</td>
</tr>
<tr>
<td>Drawout</td>
<td>480 (1057)</td>
<td>493 (1087)</td>
<td>538 (1187)</td>
<td>538 (1187)</td>
<td>947 (2087)</td>
<td>947 (2087)</td>
<td>1169 (2577)</td>
</tr>
</tbody>
</table>

* Includes 180 kg (400 lb.) auxiliary section

NEMA Type 3R Structure Weight, kg (lb.)

<table>
<thead>
<tr>
<th>Frame (A)</th>
<th>800</th>
<th>1200</th>
<th>1600</th>
<th>2000</th>
<th>2500†</th>
<th>3000†</th>
<th>4000†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed</td>
<td>620 (1367)</td>
<td>620 (1367)</td>
<td>634 (1397)</td>
<td>670 (1477)</td>
<td>1214 (2677)</td>
<td>1214 (2677)</td>
<td>1296 (2857)</td>
</tr>
<tr>
<td>Drawout</td>
<td>661 (1457)</td>
<td>675 (1487)</td>
<td>720 (1587)</td>
<td>720 (1587)</td>
<td>1310 (2887)</td>
<td>1310 (2887)</td>
<td>1532 (3377)</td>
</tr>
</tbody>
</table>

† Includes 360 kg (800 lb.) auxiliary section

Structure Dimensions, H x W x D, mm (in.)

<table>
<thead>
<tr>
<th>Rating</th>
<th>NEMA Type 1</th>
<th>NEMA Type 3R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 3000 Amp</td>
<td>1981 x 1524 x 1219 (78 x 60 x 48)</td>
<td>Consult factory</td>
</tr>
<tr>
<td>4000 Amp</td>
<td>Consult factory</td>
<td>Consult factory</td>
</tr>
</tbody>
</table>

Availability is subject to change without notice. Kohler Co. reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. Contact your local Kohler® generator set distributor for availability.